

REMARKS

Favorable reconsideration of this application, in light of the preceding amendments and the following remarks, is respectfully requested.

Claims 1-14, 16-21 and 23-26 are pending in the present application. Claims 1, 3, 4, 6, 16, 17 and 20 have been amended; claims 25 and 26 have been newly added; and claims 15 and 22 have been cancelled.

Applicants note with appreciation the Examiner's indication that the priority documents have been received by the United States Patent and Trademark Office (USPTO); the drawings filed on March 3, 2004 have been accepted by the USPTO; and the references included in the Information Disclosure Statement filed on March 3, 2004 and August 23, 2004 have been considered by the Examiner.

Claim Objections

Claims 16, 17 and 22 are objected to due to minor informalities. In response to these objections, claims 16 and 17 are amended to recite "said line detectors are gaseous-based ionization detectors" and "said gaseous-based ionization detectors are electron avalanche detectors," respectively. With respect to the objection to claim 22, Applicants respectfully note that claim 22 has been cancelled, but the features of dependent claim 22 are now incorporated into independent claim 20. Accordingly, the objection to claim 22 has been addressed in amended claim 20. Further, Applicants respectfully submit that independent claim 1 does not include methods of use, thereby addressing the Examiner's note on page 2, paragraph 3 of the Office Action mailed June 10, 2005 which states "Applicant should ensure that apparatus claims do not include methods of use."

In light of the above, Applicants respectfully request that the objections to the claims be withdrawn.

Claim Rejections under 35 U.S.C. § 112

Claims 1-15 and 17-20 stand rejected under 35 U.S.C. § 112, first paragraph. The Examiner asserts on page 2, paragraph 5 of the Office Action mailed June 10, 2005 that “the specification, while being enabling for x-ray radiation, does not reasonably provide enablement for non x-ray systems.” In response to this rejection, independent claims 1 and 20 have been amended to include “X-ray” in front of “radiation,” thereby obviating this rejection.

Therefore, Applicants respectfully submit that the amendments to independent claims 1 and 20 overcome this rejection, and respectfully request that the rejected claims 1 and 20 and dependent claims 2-14, 16, 17 and 21-24 dependent from independent claims 1 and 20 be withdrawn.

Claim Rejections under 35 U.S.C. § 102

Claims 1-11, 15 and 18-24 stand rejected under 35 U.S.C. § 102(e) as anticipated by Gregerson et al. (U.S. Publication No. 2004/0013225, herein Gregerson). Applicants respectfully traverse this rejection for the reasons detailed below.

Amended claim 1 recites, *inter alia*, a scanning-based apparatus for obtaining tomosynthesis data of an object including the following:

a radiation detector comprising a stack of line detectors, each being directed towards the divergent radiation source to allow a ray bundle of said X-ray radiation that propagates in a respective one of a plurality of different angles to enter the line detector; . . .

a first movement device that moves said divergent radiation source and said radiation detector . . . , wherein said divergent radiation source and said radiation detector are moved relative to said object a length which is sufficient for scanning each of said line detectors across the entire object to obtain, for each of said line detectors, a two-dimensional image

of X-ray radiation as transmitted through said object in a respective one of said plurality of different angles.

Applicants respectfully note that amended independent claim 20 recites a method including features similar to the above-identified features of amended independent claim 1.

Gregerson describes an imaging apparatus and related method that includes “3D computerized tomography (CT) and 2D planar X-ray imaging.”¹ The detector ray 14 disclosed in Gregerson is a flat panel digital detector array.²

Initially, Applicants respectfully submit that detector 14 described in Gregerson is not equivalent to the radiation detector “comprising a stack of line detectors, each being directed towards the divergent radiation source to allow a ray bundle of said X-ray radiation that propagates in a respective one of a plurality of different angles to enter the line detector” recited in amended independent claim 1.

Further, Applicants respectfully note that the features of original dependent claims 15 and 22 have been incorporated into amended independent claims 1 and 20. With respect to the features of original dependent claims 15 and 20, the Office Action mailed June 10, 2005 on page 6, paragraph 17 cites paragraphs 32, 38-39 and 51-53 as disclosing moving “said divergent radiation source and said radiation detector relative to said object a length which is sufficient for scanning each of said line detectors across the entire object to obtain, for each of said line detectors, a two-dimensional image of radiation as transmitted through said object in a respective one of said plurality of different angles.” Applicants respectfully rebut this assertion.

Figure 4 as discussed in paragraphs [0038] – [0039] of Gregerson describes that the detector may be rotated to different detecting positions 1-3. However, Applicants respectfully

¹ Gregerson, page 1, paragraph [0007].

² Gregerson, page 3, paragraph [0032].

submit that there is no disclosure, either inherently or explicitly, that the apparatus described in Gregerson includes a first movement device configured to move “said divergent radiation source and said radiation detector relative to said object essentially linearly in a direction essentially orthogonal to said axis of symmetry,” and “a length which is sufficient for scanning each of said line detectors across the entire object to obtain, for each of said line detectors, a two-dimensional image of X-ray radiation as transmitted through said object in a respective one of said plurality of different angles,” as recited in amended independent claim 1.

Therefore, Applicants respectfully submit that even if the Examiner maintains that detector 14 is equivalent to the “stack of line detectors” recited in amended claim 1, Gregerson still at least fails to disclose, either explicitly or inherently, the first movement device configured to move said divergent radiation source and said radiation detector including a stack of line detectors as described above. Therefore, Applicants respectfully submit that Gregerson fails to disclose each and every element of amended independent claim 1.

Based on the same reasoning as described above with respect to independent claim 1, Applicants respectfully submit that Gregerson also fails to disclose each and every element of amended independent claim 20 having features similar to amended independent claim 1.

In light of the above, Applicants respectfully request that the rejections of independent claim 1 and independent claim 20 under 35 U.S.C. § 102(e) be withdrawn. Further, Applicants respectfully submit that dependent claims 2-14, 16-19, 21, and 23-24 are patentably distinguished over the cited reference of Gregerson for at least the same reasons as amended independent claims 1 and 20. Therefore, Applicants respectfully request that the rejections to claims 2-11, 15, 18, 19 and 21-24 under 35 U.S.C. § 102(e) be withdrawn.

Still further, Applicants respectfully note with respect to dependent claims 9-11, the Office Action mailed June 10, 2005 on page 6, paragraph 16 states “Gregerson teaches the apparatus of claim 1 wherein said plurality of different angles is distributed over an angular range of at least 5, 10 or 15 Degrees (Figure 2D appears to have at least 5, 10 or 15 Degrees of angular spread).” However, Applicants respectfully note that Figure 2D illustrates a single detector in different positions during scanning, and not a detector in a single position with a given angular spread.

Claim Rejections under 35 U.S.C. § 103

Claims 12-14, 16 and 17 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Gregerson in view of Boyd et al. (U.S. Patent No. 4,075,492, herein Boyd). The Applicants respectfully traverse this rejection based on the reasoning detailed below.

A cursory review of Boyd indicates that Boyd fails to cure the deficiencies of Gregerson as described above with respect to amended independent claim 1. Therefore, Applicants respectfully submit that dependent claims 12-14, 16 and 17 are allowable for at least the same reasons as independent claim 1.

Therefore, Applicants respectfully request that the rejection of claims 12-14, 16 and 17 under 35 U.S.C. § 103(a) be withdrawn.

New Claims

Claims 25 and 26 have been added in an effort to provide further protection for the Applicants’ invention. Claims 25 and 26 include features similar to amended independent claim 1 and therefore, are also believed to patentably distinguish over the cited reference of record. Accordingly, claims 25 and 26 are believed to be in condition for formal allowance.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-14, 16-21 and 23-26 in connection with the present application is earnestly solicited.

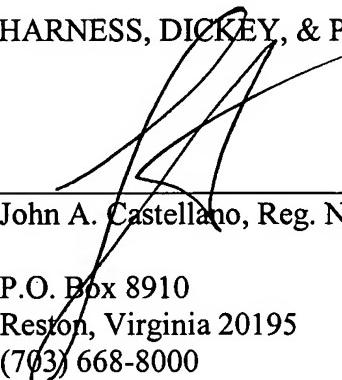
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John A. Castellano at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By


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Enclosures;

Fee Transmittal
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